

In the Claims

CLAIMS

Claims 1-30 (Canceled).

31. (Previously presented) An engagement probe comprising:
a substrate;
a projection supported over the substrate and comprising material of the substrate;
a grouping of a plurality of projecting apexes extending from the projection and positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and

wherein the projection comprises a lateral dimension less than a lateral dimension of the substrate.

32. (Previously presented) The engagement probe of claim 31 comprising a plurality of such groupings for engaging multiple conductive pads on the semiconductor substrate.

33. (Previously presented) The engagement probe of claim 31 wherein the apexes are in the shape of multiple knife-edge lines.

34. (Previously presented) The engagement probe of claim 31 wherein the apexes are in the shape of multiple knife-edge lines, the multiple knife-edge lines being positioned to form at least one polygon.

35. (Previously presented) The engagement probe of claim 31 wherein the apexes are in the shape of multiple knife-edge lines, the multiple knife-edge lines being positioned to form at least two polygons one of which is received entirely within the other.

36. (Previously presented) The engagement probe of claim 31 wherein the grouping of apexes is formed on the projection which is supported by another projection, the another projection extending directly from the substrate.

37. (Previously presented) The engagement probe of claim 31 wherein the apexes have a selected projecting distance, the projecting distance being about one-half the thickness of the conductive pad which the apparatus is adapted to engage.

38. (Previously presented) The engagement probe of claim 31 wherein the apexes project from a common plane of the projection, the apexes having respective tips and bases, the bases of adjacent projecting apexes being spaced from one another to define a penetration stop plane therebetween.

39. (Previously presented) The engagement probe of claim 31 wherein the apexes project from a common plane of the projection, the apexes having respective tips and bases, the bases of adjacent projecting apexes being spaced from one another to define a penetration stop plane therebetween, the tips being a distance from the penetration stop plane of about one-half the thickness of the conductive pad which the apparatus is adapted to engage.

40. (Previously presented) The engagement probe of claim 31 wherein the apexes are in the shape of multiple knife-edge lines, the multiple knife-edge lines interconnecting to form at least one fully enclosed polygon.

41. (Previously presented) The engagement probe of claim 31 wherein outermost portions of the electrically conductive apexes constitute a first electrically conductive material, and wherein the conductive pads for which the probe is adapted have outermost portions constituting a second electrically conductive material; the first and second electrically conductive materials being different.

42. (Previously presented) An engagement probe formed from a semiconductor material and having a grouping of a plurality of projecting apexes positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and

wherein the apexes are in the shape of multiple knife-edge lines, the multiple knife-edge lines being positioned to form at least one polygon.

43. (Previously presented) An engagement probe formed from a semiconductor material and having a grouping of a plurality of projecting apexes positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and

wherein the apexes are in the shape of multiple knife-edge lines, the multiple knife-edge lines being positioned to form at least two polygons one of which is received entirely within the other.

44. (Previously presented) An engagement probe formed from a semiconductor material and having a grouping of a plurality of projecting apexes positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and

wherein the apexes are in the shape of multiple knife-edge lines, the multiple knife-edge lines interconnecting to form at least one fully enclosed polygon.

45. (Previously presented) The engagement probe of claim 31 wherein the plurality of the projecting apexes extend from a substantially planar uppermost surface of the projection.

46. (Previously presented) The engagement probe of claim 31 wherein an entirety of the projection is spaced from the substrate.

47. (Previously presented) The engagement probe of claim 31 wherein the substrate comprises bulk silicon.

Claim 48 (Canceled).

49. (Previously presented) An engagement probe comprising:
a substrate;
a projection supported over the substrate and comprising material of the substrate;
a grouping of a plurality of projecting apexes extending from the projection and positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and
wherein the apexes are in the shape of multiple knife-edge lines, the multiple knife-edge lines being positioned to form at least two polygons one of which is received entirely within the other.

50. (Previously presented) An engagement probe comprising:
a substrate;
a projection supported over the substrate and comprising material of the substrate;
a grouping of a plurality of projecting apexes extending from the projection and positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and
wherein the grouping of apexes is formed on the projection which is supported by another projection, the another projection extending directly from the substrate.

51. (Previously presented) An engagement probe comprising:
a substrate;
a projection supported over the substrate and comprising material of the substrate;
a grouping of a plurality of projecting apexes extending from the projection and positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and

wherein the apexes project from a common plane of the projection, the apexes having respective tips and bases, the bases of adjacent projecting apexes being spaced from one another to define a penetration stop plane therebetween.

52. (Previously presented) An engagement probe comprising:
a substrate;
a projection supported over the substrate and comprising material of the substrate;
a grouping of a plurality of projecting apexes extending from the projection and positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and

wherein the apexes project from a common plane of the projection, the apexes having respective tips and bases, the bases of adjacent projecting apexes being spaced from one another to define a penetration stop plane therebetween, the tips being a distance from the penetration stop plane of about one-half the thickness of the conductive pad which the apparatus is adapted to engage.

53. (Previously presented) An engagement probe comprising:
a substrate;
a projection supported over the substrate and comprising material of the substrate;
a grouping of a plurality of projecting apexes extending from the projection and positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and
wherein an entirety of the projection is spaced from the substrate.

54. (Previously presented) An engagement probe comprising:
a substrate;
a projection supported over the substrate and comprising material of the substrate;
a grouping of a plurality of projecting apexes extending from the projection and positioned in sufficient proximity to one another to collectively engage a single conductive pad on a semiconductor substrate; and
wherein the substrate comprises bulk silicon.

55. (New) The engagement probe of claim 31 further comprising an intermediate structure between the projection and the substrate, wherein the intermediate structure comprises a lateral dimension that is different from a lateral dimension of the substrate and a lateral dimension of the projection.

56. (New) The engagement probe of claim 53 further comprising an intermediate structure between the projection and the substrate, the intermediate structure providing the spacing of the projection from the substrate, and wherein the intermediate structure comprises a lateral dimension that is different from a lateral dimension of the substrate and a lateral dimension of the projection.

57. (New) The engagement probe of claim 56 wherein the lateral dimensions of the substrate and the projection are different.

58. (New) The engagement probe of claim 54 wherein the projecting apexes comprise bulk silicon.

59. (New) The engagement probe of claim 54 further comprising an intermediate structure between the projection and the substrate, wherein the intermediate structure comprises a lateral dimension that is different from a lateral dimension of the substrate and a lateral dimension of the projection.